NEWARK INTERNATIONAL AIRPORT,
BREWSTER HANGAR
(Newark International Airport,
Building 55)
North Area of Newark International
Airport, Brewster Road between
intersections of Brewster Road and
Route 21 and Brewster Road and New
Jersey Turnpike exchange 14
Newark VICINITY
Essex County
New Jersey

HAER No. NJ-133-A

HAER
NJ
7-NEARK.V,
1A-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
Northeast Region
Philadelphia Support Office
U.S. Custom House
200 Chestnut Street
Philadelphia, Pennsylvania 19106

HISTORIC AMERICAN ENGINEERING RECORD

NEWARK INTERNATIONAL AIRPORT,
BREWSTER HANGAR
(Newark International Airport, Building 55)

HAER
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HAER No. NJ-133-A

Location: North Area of Newark International Airport, Brewster Road between intersections of Brewster Road and Route 21 and Brewster Road and New Jersey Turnpike exchange 14, Newark, Essex County, New Jersey

UTM: 18.570400.4506340
Quad: Elizabeth, New Jersey, 1:24,000

Date of Construction: 1939

Engineer: James Costello

Architect: Harry H. Tuttle

Present Owner: Port Authority of New York and New Jersey

Present Use: Aircraft and support vehicle maintenance and storage

Significance: Part of Newark International Airport, Brewster Hangar was unique at the time it was built due to unusually large doors with electronic controls, large overall size (1054 ft long x 150 ft wide, with three interior sections), and the fact that the interior was heated to prevent warping of aircraft struts and wings. The Brewster Hangar also contained a locker room, garage, boiler room, stock room, and machine shop. Most notably, the hangar was the assembly site of the airplane the Brewster "Buffalo", a DC3 that saw action in the Battle of Midway during World War II.

Project Information: Continental Airlines is modernizing sections of Newark International Airport. As part of these measures, Continental is planning to demolish the structure and replace it with facilities better equipped to handle modern aircraft. This documentation intends to satisfy historical record requirements per an agreement between the Federal Aviation Administration (FAA) and the New Jersey State Historical Preservation Officer (NJSHPO).

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PHYSICAL DESCRIPTION

The Brewster Hangar is 1054 feet long, 150 feet wide, and 57 feet high. The exterior of the building is primarily Art-deco style brick, metal, and glass. The hangar is divided into three sections - A, B and C - with two doors each section. In addition to aircraft storage space, the original hangar included a locker room, garage, boiler room, stock room, and machine shop, some of which have since been converted for other uses. At the time of its construction, the bay side of the building opened to six runways. The hangar was designed to, and for many years did, house the largest aircraft of its time.

Along the south side of the building are four outcroppings and three sections of hangar doors. The doors take up the entire face of the building. Each section has several doors with electric pulley systems attached to open and close them. The doors have a metal and wood area along the bottom that is approximately seven feet high. The rest of the doors consist of glass windows held by wire frames. Along the top of the wall dominated by the hangar doors is a band of corrugated metal. Each section of the hangar features two ceiling skylights. The outcroppings on this side of the building are three stories tall. Outcroppings separate sections A, B, and C, and there is also one on each end of the hangar. They were built on metal bases and have walls made of plaster and brick. The windows are of the same wire-framed glass style as the windows on the hangar doors. The roofs of these outcroppings are made from cement plaster and concrete coping.

The outside of the north wall has several attached buildings. Attached to sections A and C are one-story structures. Hangar B has a two-story structure. Like the rest of the building, these outcroppings are in the Art-deco style. The main wall of the hangar has wire-framed glass windows which have been covered with corrugated metal. The east and west walls of the hangar are much like the back, with windows that have also been covered with corrugated metal.

The roof of the main building is corrugated metal coping. Each hangar section has two glass skylights in the roof. Along the inside of the building near the roof is a catwalk with iron hand railings. Steel trusses hold up the roof. Galvanized steel piping runs along the ceiling and walls on the inside of the building. The floor of the hangar is concrete, and tile walls separate the rooms in the interior of the hangar. A large heating system is located against the wall opposite the hangar doors. Large lights hang from the ceiling.

The main hangar area is no longer used to house today's large aircraft. It is presently used to house and service airplane parts and airport service vehicles. While the hangar still serves an airport purpose, the building is in need of renovation. Much of the glass windows that are not covered with corrugated metal are broken or painted over. Some of the bricks on the exterior of the building are crumbling, and the paint is peeling. The interior of the building is in similar conditions. Attempts have been made to mask the aging interior of the office spaces with coats of paint.

HISTORY

The Brewster Hangar (named for the Brewster Airplane Company, which it housed) was built as part of the continuing expansion of Newark Airport, at the time one of the busiest airports in the world.[1] The Brewster Airplane Company used the Brewster Hangar in the assembly of the "Buffalo" aircraft, an early DC3 that saw action in the Battle of Midway in World War II. [2] The hangar, also known as building 55, was also used to store aircraft.

The Brewster Hangar was designed in the summer and fall of 1936 and constructed in 1939. The architect of the hangar was Harry H. Tuttle. The chief engineer of the project was James Costello, the principal assistant engineer was A.H. Armstrong, and the assistant engineer was R.L. Thompson. The hangar design was state-of-the-art for the time. Although the purpose of the building was primarily utilitarian, it nonetheless exhibits the Art-Deco details typical of other early twentieth-century buildings. It was one of the largest hangars in the world. The building was also unusual in that it had doors at one end of the building only, rather than both, as was customary. Having one set of doors eliminated the need for additional paved apron and taxiway areas. Also, the use of a single apron speeded the handling of the aircraft.[3] The doors were exceptionally large, weighing 40 tons, and were operated electronically – an innovative technology for the time.[4] Another unusual aspect of the hangar was that the inside was heated to prevent warping of aircraft struts and wings.[5] The heating system was designed by Runyon and Carey, consulting engineers out of Newark. In inclement conditions, airline mechanics could fit as many as a dozen DC3s inside each of the six bays of the hangar. [6]

Following World War II, with the burgeoning of the aviation industry and subsequent manufacture of larger aircraft, the hangar was removed from service as an aircraft housing facility. It has since been used by the several different airlines for administrative functions, maintenance operations, and storage.

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[1] "The History of Newark Airport," (written for the dedication of the new passenger terminal), 29 July 1953).

[2] Ibid

[3] Ibid

[4] Geoffrey Arend, *Air World's Great Airports: Newark 1928-1952,* (New York: Air Cargo News, Inc., 1978).

[5] Ibid

[6] Ibid

SOURCES OF INFORMATION/BIBLIOGRAPHY

A. Engineering Drawings

Many drawings, architectural plans, and "as-builts" of Brewster Hangar are located in the record depository of the City of Newark at Newark City Hall. Photographs of representative drawings of the hangar are included as part of this package.

B. Historic Views

Brewster Hangar can be seen in the historic views of Newark International Airport as part of HAER-133. Brewster Hangar is the building that, in the earlier pictures, has "NEWARK" painted on the roof. These views were obtained from Continental Airlines, Houston, Texas.

C. Interviews

No interviews were conducted in the research of the material in this report

D. Bibliography

1. Primary and Unpublished Sources

"The History of Newark Airport." (written for the dedication of the new passenger terminal). 29 July 1953. Found in the newspaper-clipping file of the New Jersey Reference archives at the Newark Public Library in Newark, New Jersey under the heading "Newark Airport".

2. Secondary Sources

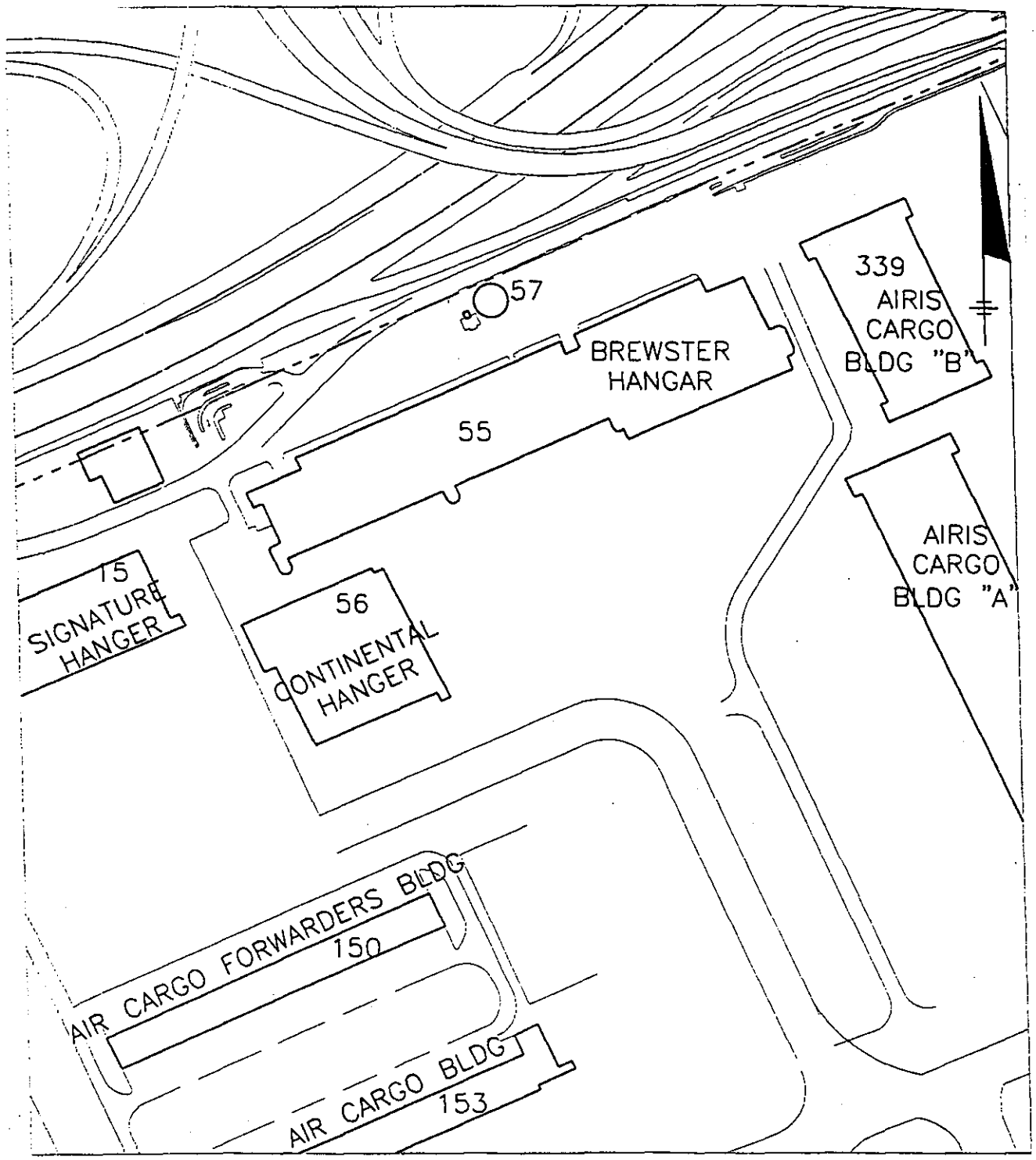
Arend, Geoffrey. Air World's Greatest Airports: Newark 1928-1952. New York: Air Cargo News, Inc., 1978.

"Doubled Airport Flights Prove Predictions Right." Unknown Newspaper. 16 September 1946. Found in the newspaper clippings file of the New Jersey Reference archives at the Newark Public Library in Newark, New Jersey under the heading "Newark Airport".

E. Likely sources not yet investigated

Newark Historical Society files

BREWSTER HANGAR AND ENVIRONS



Source: Ben Tufford, O'Brien & Gere Engineers, Inc., February 2000